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Factors affecting access to subcutaneous medicines for people dying in the community

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Objectives: Common terminal phase symptoms include pain, dyspnoea, anxiety, terminal restlessness, nausea and noisy breathing. This study identified the proportion of community pharmacies across two Australian states stocking medicines useful in managing terminal phase symptoms, while exploring factors considered predictive of pharmacies carrying these medicines.

Methods: Community pharmacies from across the states of New South Wales (NSW) and South Australia (SA) were concurrently mailed a survey. Respondents were asked questions relating to medicines stocked, expiry date of stock, awareness of people with palliative care needs and demographic characteristics of the pharmacy. A 'prepared pharmacy' was defined as a pharmacy that held medicines useful in the management of terminal phase symptoms.

Results: The proportion of prepared pharmacies across NSW and SA was 21.9%. Multiple logistic regression demonstrated eight predictors of prepared pharmacies, of which awareness of people with palliative needs using their service was the strongest.

Conclusions: One-fifth of community pharmacies carry formulations useful in managing terminal phase symptoms. The main factor associated with this was awareness of people with palliative needs using the pharmacy. Strategies that engage with pharmacists in anticipation of the terminal phase are critical, supporting people with palliative needs to remain at home to die, if desired.

Keywords: Pharmacists, Terminal care, Pharmaceutical preparations, Signs and symptoms

Background

Internationally, there is growing pressure for palliative care services, as the population ages.[1] While the last 12 months of life are spent predominantly in the community, changes in someone's condition will nevertheless contribute to multiple hospital admissions.[2,3] The experience of people living with palliative care needs highlights the demand for systems and processes supporting collaboration between clinicians working in community-based and hospital-based services.[4] Access to subcutaneous medicines for people wishing to remain in the community and the role of the community pharmacist in end-of-life care has been studied globally.[5–8]

The Australian healthcare system is complex: two tiers of government (one federal and eight state or territory-based) predominantly share the responsibility for its funding and regulation. The Australian Federal government subsidises care provided through non-government organisations (NGOs), including community pharmacies, general practices, and aged care service providers. Important funding levers include the Pharmaceutical Benefits Scheme (PBS), the Medicare Benefits Schedule (MBS) and Home Care Packages (HCP). Australian public hospitals are predominantly funded by the relevant state or territory-based government. Specialist Palliative Care Services (SPCSs) support people with complex palliative needs within hospital settings and provide outreach into the community. Like hospitals, they are funded at the state or territory level. For community-based patients, collaboration between clinicians working in SPCSs and NGOs is essential, despite separate funding models.

Even with these complexities, figures indicate about half of all Australians with palliative needs die either in their own home or within a Residential Aged Care Home (RACH).[9] Evidence shows that appropriate symptom management throughout the terminal phase is a central component to being able to remain at home to die.[6] Commonly observed terminal phase symptoms include: pain, dyspnoea, anxiety, terminal restlessness, nausea and noisy breathing.[10]

In 2012, a Community Pharmacy Survey was developed within one SPCS, to identify how this service

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could work better with community pharmacists in supporting people with palliative needs across the state of South Australia (SA).[11] The survey included a comprehensive list of subcutaneous formulations (including alternative strengths) useful in managing symptoms commonly experienced in the terminal phase. The authors concluded that community pharmacists throughout SA were often unable to anticipate which formulations to stock for people requiring medications in the terminal phase; leaving them underprepared when a prescription was presented for such medicines. In response, a state-based multidisciplinary working party led the development of a core medicines list, comprising five formulations to manage terminal phase symptoms.[12] This list formed the basis of a range of education strategies for clinicians working in NGOs across SA. Data from a repeat survey in 2015 demonstrated significant improvement in availability of formulations from the core medicines list through pharmacies across SA.[13]

In 2017, discussions across state borders led to recommendations to distribute the survey to community pharmacies in the state of New South Wales (NSW).[14] To be able to compare results, the survey was distributed concurrently to community pharmacies across SA and NSW.

The objectives of distributing the survey were to identify the (1) proportion of community pharmacies stocking formulations useful in managing all six terminal phase symptoms and (2) factors associated with stocking a broad range of medicines, across two Australian states.

Methods

The development of the survey has been described elsewhere.[11] It is a two-page paper-based survey and is included in the supplementary file.

The study population comprised all community pharmacies across SA and NSW. The names and addresses of all 1970 registered pharmacies operating in NSW were obtained from the Pharmacy Council of NSW. Details of all 482 registered Pharmacies in SA were obtained from the Pharmacy Regulation Authority of SA. Twelve pharmacies from SA were excluded as they would not be expected to carry end-of-life medicines (e.g. a pharmacy associated with a fertility clinic). This left 470 SA pharmacies.

All 2440 pharmacies were posted a covering letter, the survey and a reply paid envelope. These were addressed to the proprietor or manager, where this information was known. Respondents could return the survey using a reply paid envelope.

Because of the large numbers of letters and surveys printed, signed and posted, the mailing of the surveys was done throughout August and September 2018. To allow time for completing responses, surveys were accepted if received by 30 November 2018.

Each survey was allocated an individual code, allowing anonymous identification of non-responders through their postcode. The data of responders could then be compared with non-responders to identify applicability of this dataset and relevance of the findings to the broader pharmacy community.

Once the survey was returned, the data were entered into a secure results database. All fields completed by the respondent were included in the analysis. If the respondent left a field blank, this was taken as the item or service being unavailable in their pharmacy.

Pharmacies were assigned PhARIA (Pharmacy Accessibility Remoteness Index of Australia), which quantifies the degree of remoteness and accessibility (both geographic and professional), and was developed by the National Key Centre for Social Applications of Geographical Information Systems (GISCA) at the University of Adelaide, for the (then) Commonwealth Department of Health and Aged Care and the Pharmacy Guild of Australia. PhARIA continues to be maintained by the Hugo Centre for the Commonwealth Department of Health.[15] Distributions of the index between responding and non-responding pharmacies were compared and tested. The non-significant test result would indicate the same spread of remoteness/accessibility between responding and non-responding pharmacies.

A 'preparedness score' (ranging from 0 to 6) was calculated for each pharmacy, using the data provided, by adding one point if they held a medicine that could manage each of the following terminal phase symptoms: pain, dyspnoea, anxiety, terminal restlessness, nausea and noisy breathing (see Table 1). A 'preparedness score' of 0 indicated no likelihood of finding medicines useful to manage terminal phase symptoms. For ease of comparison, pharmacies:

- scoring six points were coded 'prepared' as they had at least one medicine available to ameliorate each of the six commonly anticipated terminal phase symptoms;
- scoring five or less points were coded 'underprepared'.

Responses were assessed to identify characteristics significantly associated with being prepared.

Statistical analysis

The distributions of the PhARIA index between responding and non-responding pharmacies, in both states, were tested using Chi-Square statistics. The non-significant test result would indicate the same spread of remoteness/accessibility between responding and non-responding pharmacies.

Descriptive statistics were used to describe the outcome and explanatory variables. The outcome of

Table 1 Relationship between symptoms and formulations listed within the survey to calculate the preparedness score

Terminal phase symptom	Medicine	Score
Anxiety	Clonazepam 1 mg/mL Ampoules Clonazepam 2.5 mg/mL Oral Drops Midazolam 5 mg/mL Ampoules, or alternative concentrations	1
Pain	Fentanyl 100 mcg/2 mL Ampoules, or alternative concentrations Hydromorphone 10 mg/mL Ampoules, or alternative concentrations Morphine[spelling of morphine sufate] Sulphate 10 mg/mL Ampoules, or alternative concentrations Morphine Hydrochloride 10 mg/mL Oral mixture, or alternative concentrations Oxycodone Hydrochloride 10 mg/mL Ampoules, or alternative concentrations	1
Dyspnoea	Fentanyl 100 mcg/2 mL Ampoules, or alternative concentrations Hydromorphone 10 mg/mL Ampoules, or alternative concentrations Morphine Sulphate 10 mg/mL Ampoules, or alternative concentrations Morphine Hydrochloride 10 mg/mL Oral mixture, or alternative concentrations Oxycodone Hydrochloride 10 mg/mL Ampoules, or alternative concentrations	1
Terminal Restlessness	Haloperidol 5 mg/mL Ampoules Clonazepam 1 mg/mL Ampoules Clonazepam 2.5 mg/mL Oral Drops Midazolam 5 mg/mL Ampoules, or alternative concentrations	1
Nausea	Metoclopramide 10 mg/2 mL Ampoules Haloperidol 5 mg/mL Ampoules Dexamethasone Sod.Phos. 4 mg/mL Ampoules, or alternative concentrations	1
Noisy Breathing	Hyoscine Hydrobromide 400 mg/mL Ampoules Hyoscine Butylbromide 20 mg/mL Ampoules	1

the study was preparedness, which was dichotomised into prepared and underprepared pharmacies. Categorical explanatory variables were described proportionally, while mean and standard error was used to describe continuous variables. A difference in proportions and/or an association between outcomes and explanatory variables was tested using Chi-square statistics, with continuity adjustment. Fisher exact test was applied where appropriate.

Potential predictors were individually tested in simple logistic regression models. Logistic regression models were used to identify the significant survey responses associated with prepared pharmacies. Survey responses identified as significant ($P < 0.05$) were used to build a multiple logistic regression model. From the logistic regression model, an association was quantified by odds ratio and its 95% confidence interval. The confidence interval, including one, indicated an insignificant odds ratio. All possible models were assessed for: goodness of fit using Hosmer and Lemeshow statistics, coefficient of determination using Nagelkerke R^2 and Area Under The Receiver Operating Characteristic Curve.

All statistical analyses were performed using the Statistical Package for Social and Science for Windows (version 19). The level of significance used for all the tests was 0.05.

Results

A total of 2440 community pharmacies were mailed a survey. Eight surveys were returned undelivered. Seven hundred and twenty-nine (30.0%) completed surveys were returned, using the reply address envelope supplied to them. The difference in the PhARIA categories between participating and non-participating pharmacies was not significant ($P = 0.13$). As no substantial bias between responding and non-responding pharmacies was apparent, the findings could be generalised to a total population of pharmacies in the two states. As such, no follow-up letters were mailed out.

Of the 729 respondents that provided details of their role, 329 (45.1%) identified as proprietors, 264 (36.2%) as registered pharmacists and 112 (15.4%) as managers.

Responding pharmacists worked in pharmacies with a median of two pharmacists on staff (Interquartile range (IQR) = 2, 1–3) and offered a median of four medication management services, as specified in Table 2. These were likely to be services relating to the preparation of dose administration aids (DAAs), delivery of medicines to the person's home, Nationally funded in-pharmacy medication reviews (known as a MedsCheck) and Nationally funded in-home medication reviews (known as a Home Medication Review).

Community pharmacies stocked a median of three formulations (IQR = 5, 1–6) that would be suitable to use in managing terminal phase symptoms. These were likely to be metoclopramide 10 mg/2 mL ampoule (59.9%), morphine 10 mg mL^{-1} ampoules (42.0%) and haloperidol 5 mg mL^{-1} ampoules (37.9%) (see Table 2). One hundred and seventy-three (23.7%) pharmacies carried no formulations suitable to manage symptoms in the terminal phase.

Preparedness

The median calculated preparedness score was two (IQR = 5, 0–5), indicating that half of the community pharmacies will be able to supply medicines for at least two out of a possible six terminal phase symptoms. For the purpose of comparison, 160 (21.9%)

Table 2 Proportion of pharmacies providing medicine management services and terminal phase medicines (*n* (%))

Pharmacy service	Number (proportion) of all pharmacies ($n = 729$)
After-hours/On-call service	115 (15.8)
RACH (Clinical service)	120 (16.5)
RACH (Supply service)	243 (33.3)
DDA service	681 (93.4)
Home delivery service	590 (80.9)
HMR service	518 (71.1)
Hospital (Clinical)	32 (4.4)
Hospital (Supply)	59 (8.1)
MedsCheck	588 (80.7)
RMMR	130 (17.8)
Clonazepam 1 mg Ampoules	94 (12.9)
Clonazepam 2.5 mg mL^{-1} Oral Drops	250 (34.3)
Dexamethasone Sod.Phos. 4 mg mL^{-1} Ampoules	165 (22.6)
Fentanyl 100 mcg/2 mL Ampoules	65 (8.9)
Haloperidol 5 mg mL^{-1} Ampoules	276 (37.9)
Hydromorphone 10 mg mL^{-1} Ampoules	105 (14.4)
Hyoscine Butylbromide 20 mg mL^{-1} Ampoules	245 (33.6)
Hyoscine Hydrobromide 400 mcg mL^{-1} Ampoules	25 (3.4)
Metoclopramide 10 mg/2 mL Ampoules	437 (59.9)
Midazolam 5 mg mL^{-1} Ampoules	306 (42.0)
Morphine Hydrochloride 10 mg mL^{-1} Oral mixture	254 (34.8)
Morphine Sulphate 10 mg mL^{-1} Ampoules	303 (41.6)
Oxycodone Hydrochloride 10 mg mL^{-1} Ampoules	26 (3.6)

Note: DDA – dose administration aid, HMR – home medication review, RMMR – residential medication management review, RACH – residential aged care home.

pharmacies were coded prepared as they had the maximum preparedness score. The remaining 569 (78.1%) of pharmacies were coded as underprepared.

Predictors of being prepared

Of the 18 factors reviewed, simple logistic regression identified 13 that were significant (see Table 3). Multiple logistic regression identified eight of these factors as significantly associated with prepared pharmacies. Respondents were more than 12 times likely to be prepared if they were aware of at least one palliative care patient using their pharmacy over the previous 12 months ($P = 0.001$). In addition, prepared pharmacies were almost two and a half times more likely to be in SA ($P < 0.001$).

Discussion

Almost one in five community pharmacies across NSW and SA stocked sufficient formulations to manage commonly anticipated terminal phase symptoms. For caregivers living in urban areas, chances are good for accessing terminal phase medicines through their usual pharmacy, or one nearby. Those living in regional areas, without a car or access to good transport links, can experience significant disadvantage.

These findings also demonstrate predictive factors that influence the availability of medicines used to manage terminal phase symptoms, through community pharmacies.

Respondents from prepared pharmacies were 12.7 times more likely to be aware of palliative care patients using their pharmacy in the previous 12 months, giving weight to the role of a pharmacist in interdisciplinary care. Further analysis of the data is necessary to understand how respondents are made aware of people with palliative care needs. Studies from Australia and beyond have reported that pharmacists are often underutilised and unrecognised members of the palliative care health team.[7] Nevertheless, pharmacists are willing to be more involved with people experiencing palliative care needs, along with their caregivers.[16]

The data also describes how respondents from prepared pharmacies behave differently. It seems that working in a prepared pharmacy empowers staff to communicate with the prescriber when presented with an issue, such as the inability to immediately supply a medicine. When a medicine requires purchasing, extra delays result. Most caregivers faced with the possibility of delayed symptom management, while waiting for the medicines to arrive, are likely to approach another pharmacy or escalate care in order to expedite symptom control.[11] While there are many approaches to managing a request for subcutaneous medicines unstocked by the pharmacy, contacting the prescriber offers a number of opportunities to build on the multidisciplinary nature of palliative care and embed the role of the pharmacist into practice, including:

- Increasing the pharmacist's perspective on the situation so they have better understanding of the urgency of the situation (Is this medicine ordered in anticipation of a terminal phase symptom or are they imminently dying?);
- Negotiating a supply plan to accommodate escalation of doses, or simply ongoing supply;
- Improving collaboration for future requests, resulting in a shift towards anticipatory prescribing or the stocking of a standard list of medicines by the pharmacy;
- Building relationships with prescribers so that other services, such as home delivery, home medicines review and education or disposal of unwanted medicines, become standard practice for people with palliative care needs.

Community pharmacies which supply medicines to RACHs were twice as likely to be prepared. This

Table 3 Predictors of respondents working in prepared pharmacies (*n* (%))

				Simple logistic regression		Multiple logistic regression	
Variable	Characteristic	Prepared	Underprepared	Odds ratio (95% confidence interval)	*P*-value (*F*-test)	Adjusted odds ratio (95% confidence interval)	*P*-value (*F*-test)
Awareness of people using pharmacy in the previous 12 months	None	2 (1.9)	102 (98.1)	1.0			
	Aware of at least 1 customer with palliative needs	188 (30.1)	437 (69.9)	21.9 (5.3–89.8)	$P < 0.001$	12.7 (3.0–53.5)	$P = 0.001$
If the prescribed formulation was not stocked, respondent would:							
Tell the carer they were unable to supply item	No	175 (26.2)	493 (73.8)	1.0			
	Yes	15 (24.6)	46 (75.4)	0.9 (0.5–1.7)	$P = 0.78$		
Contact prescriber to recommend an alternative concentration	No	112 (20.0)	449 (80.0)	1.0			
	Yes	78 (46.4)	90 (53.6)	3.5 (2.4–5.0)	$P < 0.001$	1.6 (1.0–2.7)	$P = 0.047$
Contact prescriber to recommend an alternative medicine	No	119 (20.3)	466 (79.7)	1.0			
	Yes	71 (49.3)	73 (50.7)	3.8 (2.6–5.6)	$P < 0.001$	2.0 (1.2–3.4)	$P = 0.007$
Contact the distributor urgently to arrange prompt delivery of medicines	No	140 (24.8)	425 (75.2)	1.0			
	Yes	50 (30.5)	114 (69.5)	1.3 (0.9–2.0)	$P = 0.14$		
Place an order with their distributor to arrange delivery of medicines, for the next working day	No	84 (28.9)	207 (71.1)	1.0			
	Yes	106 (24.2)	332 (75.8)	0.8 (0.6–1.1)	$P = 0.16$		
Contact another pharmacy to arrange urgent supply of medicines	No	40 (22.6)	137 (77.4)	1.0			
	Yes	150 (27.2)	402 (72.8)	1.3 (0.9–1.9)	$P = 0.23$		
PhARIA	1	144 (25.2)	428 (74.8)	1.0			
	2,3,4,5,6	46 (29.3)	111 (70.7)	0.8 (0.5–1.2)	$P = 0.30$		
Australian State	NSW	139 (23.8)	445 (76.2)	1.0			
	SA	51 (35.2)	94 (64.8)	1.7 (1.2–2.6)	$P = 0.006$	2.4 (1.5–3.8)	$P < 0.001$
Number of pharmacist in pharmacy	0.0–2.0 FTE	110 (21.8)	394 (78.2)	1.0			
	2.01–11.0 FTE	77 (37.7)	127 (62.3)	2.2 (1.5–3.1)	$P < 0.001$	2.0 (1.3–2.9)	$P = 0.001$
Medication management services							
Provide an after-hours or on-call service	No	131 (21.3)	483 (78.7)	1.0			
	Yes	59 (51.3)	56 (48.7)	3.9 (2.6–5.9)	$P < 0.001$	2.3 (1.4–3.7)	$P = 0.001$
Provide a clinical service to a RACH	No	125 (20.5)	484 (79.5)	1.0			
	Yes	65 (54.2)	55 (45.8)	4.6 (3.0–6.9)	$P < 0.001$		
Provide a medicines distribution service to a RACH	No	82 (16.9)	404 (83.1)	1.0			
	Yes	108 (44.4)	135 (55.6)	3.9 (2.8–5.6)	$P < 0.001$	2.1 (1.4–3.2)	$P < 0.001$
Provide a DAA service	No	6 (12.5)	42 (87.5)	1.0			
	Yes	184 (27.0)	497 (73.0)	2.6 (1.1–6.2)	$P = 0.03$		
Offer a home delivery service	No	19 (13.7)	120 (86.3)	1.0			
	Yes	171 (29.0)	419 (71.0)	2.6 (1.5–4.3)	$P < 0.001$	1.9 (1.0–3.4)	$P = 0.04$
Provide a HMR service	No	37 (17.5)	174 (82.5)	1.0			
	Yes	153 (29.5)	365 (70.5)	2.0 (1.3–2.9)	$P = 0.001$		
Provide a clinical service to a hospital	No	176 (25.3)	521 (74.7)	1.0			
	Yes	14 (43.8)	18 (56.3)	2.3 (1.1–4.7)	$P = 0.02$		

Continued

Continued

Variable	Characteristic	Prepared	Underprepared	Simple logistic regression: Odds ratio (95% confidence interval)	Simple logistic regression: *P*-value (*F*-test)	Multiple logistic regression: Adjusted odds ratio (95% confidence interval)	Multiple logistic regression: *P*-value (*F*-test)
Provide medicines distribution service to a hospital	No	171 (25.5)	499 (74.5)	1.0			
	Yes	19 (32.2)	40 (67.8)	1.4 (0.8–2.4)	$P = 0.26$		
Offer MedsCheck services	No	33 (23.4)	108 (76.6)	1.0			
	Yes	157 (26.7)	431 (73.3)	1.2 (0.8–1.8)	$P = 0.42$		
Provide an RMMR service	No	136 (22.7)	463 (77.3)	1.0			
	Yes	54 (41.5)	76 (58.5)	2.4 (1.6–3.6)	$P < 0.001$		

Note: DAA – dose administration aid, HMR – home medication review, RMMR – residential medication management review, PhARIA – Pharmacy Accessibility Remoteness Index of Australia, RACH – residential aged care home.

link is unsurprising given the overlap between aged care and palliative care. Importantly, in Australia, RACHs have formal contracts with privately owned community pharmacies.

Innovative models of providing care in home-like environments – such as clustered domestic residential aged care – have increasing uptake; these models are associated with fewer hospitalisations and better quality of life.[17] Under these models, Australians will continue to obtain funded aged care services in the home, while independently sourcing their medicines through their preferred community pharmacy, bypassing the aged care provider. Policy makers will need to consider how this will impact on how medicines useful for symptom management in the terminal phase are accessed, within this context.

Community pharmacies open for longer hours, providing home delivery services and staffed with more than two full-time equivalents of pharmacists were also predictive of being prepared. It is likely that these qualities make the community pharmacy more accessible for carers of people who are dying. More research would be necessary to ascertain if this explanation was appropriate.

SA pharmacies were almost two and a half times more likely and NSW pharmacies to be prepared. This may be attributed to the promotion of a core palliative medicines list.[13] While the SA list was constructed in 2012, a broader national list was endorsed by the Australian and New Zealand Society of Palliative Medicine in 2015.[18] Table 4 compares the two lists against the availability through the Australian PBS.[19] The PBS was introduced in Australia in 1948, to provide government subsidy to the cost of a broad range of medicines at the time of dispensing to patients. With community pharmacies stocking a median of three formulations to manage terminal phase symptoms, the smaller list from SA appears more pragmatic, when applying these lists to practice. Regardless of the size of the list, core medicines lists have been developed out of a need for people to access medicines more readily and cost effectively for terminal phase symptoms.[12,20] There are a large number of formulations available on the Australian market to manage commonly observed terminal phase symptoms; it is unreasonable to ask community pharmacies to carry all possible formulations. A tighter standardised list of medicines can

Table 4 Comparison between SA ore Medicines List, ANZSPM terminal phase Medicines list and PBS availability

Formulation	Core medicines list from SA	ANZSPM terminal phase medicines	Australian PBS
Clonazepam 2.5 mg mL^{-1} Oral Drops	No	Yes	Yes (restrictions apply)
Clonazepam 1 mg mL^{-1} Ampoules	Yes	Yes	Yes (restrictions apply)
Fentanyl 100 mcg/ 2 mL Ampoules	No	Yes	No
Haloperidol 5 mg mL^{-1} Ampoules	Yes	Yes	Yes
Hydromorphone 2 mg mL^{-1} Ampoules	No	Yes	Yes
Hyoscine butylbromide 20 mg mL^{-1} Ampoules	Yes	Yes	Yes
Metoclopramide 10 mg/2 mL Ampoules	Yes	Yes	Yes
Midazolam 5 mg mL^{-1} Ampoules	No	Yes	No
Morphine sulphate 10 mg mL^{-1} Ampoules	Yes	Yes	Yes
Morphine 30 mg mL^{-1} Ampoules	No	Yes	Yes

Note: ANZSPM – Australian and New Zealand Society of Palliative Medicine, PBS – Pharmaceutical Benefits Scheme.

ensure the medicines that are prescribed are also the ones that are stocked, by community pharmacies or RACHs. This may be based on State-based or National guidance or through local discussions between prescribers and pharmacists. The introduction and promotion of a palliative care core medicine list in NSW would support greater communication and collaboration within the wider palliative care multidisciplinary team. Prescribers would be able to prescribe a medicine that they know the community pharmacy is likely to stock, without adding stress to the carer.

Enabling people with palliative needs to receive care in their home is important. While there are many reasons for people to be transferred and cared for within acute services, access to medicines for the relief of terminal phase symptoms should be reliable and not the cause for escalation of care. Using the person's preferred pharmacy is sensible. The study findings suggest that communicating with pharmacists about people with palliative care needs can streamline access to appropriate medicines.

Limitations

This study only considered geographic representation when assessing applicability of results across the broader Australian population. There may be other factors, such as socioeconomic, or a respondent's years of experience, which may have influenced the results. The survey has not formally been validated and might have missed factors, such as the proportion of older Australians within each postcode. Survey responses were based on an individual pharmacist's recall and personal practice, which may not be representative of other pharmacists in the same pharmacy. It may also be their ideal practice as opposed to how they would respond under pressure. While a comprehensive list of medicines is included in the survey, it is possible that some expensive medicines missing from the list (e.g. ondansetron injection) are available in community pharmacies; this would change the calculated preparedness score. Finally, the terms prepared and underprepared are constructs to distinguish between pharmacies with a broad range of medicines even though many patients will not experience all symptoms.

Implications for clinical practice

In practice, this study shows that when considering access to medicines useful in managing terminal phase symptoms, planning and communication remain important.

Healthcare professionals should identify, document and communicate with the person's usual pharmacy early in their trajectory, as a simple approach to improve the pharmacist's awareness of people with palliative care needs using their services. It is important that the onus is on the healthcare professional, as it is likely they will identify more people with palliative care needs.

Generalisability

This study was conducted across two States in a resource-rich country that has universal healthcare, founded upon a network of community-based providers. Community pharmacists in Australia provide a range of medication management services, which may differ in other parts of the world.

Recommendations

Peak professional bodies should endorse and promote a core medicines list, ensuring there is a standardised message to both prescribers and community pharmacists as to which medicines should be prescribed and stocked, to facilitate timely access.

Aged care and nursing organisations supporting people to remain in their own home to die, should engage with the person's usual pharmacy, to support interdisciplinary communication.

Prescribers and pharmacists should anticipate the terminal phase and the challenges brought about by the limited accessibility to medicines required during this phase, as people lose their ability to swallow. Interdisciplinary discussions in anticipation of people entering the terminal phase are paramount, to ensure that individuals are helped in a timely manner.

Conclusion

Our survey results articulate a number of factors associated with community pharmacies stocking medicines useful in the management of terminal phase symptoms. Community-based pharmacies can play an important role in managing terminal phase symptoms, through timely access to medicines. Pharmacist awareness of people with palliative care needs using their pharmacy appears to be a crucial factor; one which can be improved. Translating partnership models that currently exist between RACHs and community pharmacies are important as health systems evolve to support people dying at home or home-like environments. By strengthening partnerships across communities, businesses and government – with policy support and adequate funding models – it is possible to improve community access to medicines useful in the management of terminal phase symptoms.

Supplemental data

Supplemental data for this article can be accessed at https://doi.org/10.1080/09699260.2020.1746033.

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Conflict of interest None.

Ethics approval The Southern Adelaide Clinical Human Research Ethics Committee (SAC HREC) reviewed the project and determined it does not require ethical review or approval, as this is a quality improvement project. Ethics for conducting the study in NSW was obtained from the South Eastern Sydney Local Health District Human Ethics Committee in accordance with NSW Health Guideline GL2007_020 Human Research Ethics Committees – Quality Improvement and Ethics Review: A Practice Guide for NSW.

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